

ORDER

DEPARTMENT OF TRANSPORTATION FEDERAL AVIATION ADMINISTRATION

SM-135
6300.4

1 Feb 1972

SUBJ: DIPLEX OPERATION OF RADAR SYSTEMS

1. PURPOSE. This order promulgates information concerning the capability and operational use of radar diplexing.
2. DISTRIBUTION. This order is distributed to the branch level in FAA headquarters Airway Facilities, Air Traffic and Flight Standards Services; to the branch level in regional Airway Facilities, Air Traffic and Flight Standards; a minimum distribution to the Airway Facilities sectors.
3. DEFINITION OF RADAR DIPLEXING. This is defined as the capability to operate both channels (transmitters and receivers) of a dual channel radar system simultaneously and to combine the video outputs.
4. BACKGROUND. The diplex capability is not a new feature in radar technology. FAA radars in the past have not included this capability; however, all the FPS-60 series of radars in their present configuration have diplex capability, but are only used for USAF data except for the ARSR-60 long range radar installed at Trevose, Pennsylvania. New systems such as the ASR-8 and ARSR-3 will include diplex capability. The diplex feature provides additional operational and maintenance capability in radar systems for a small investment. This additional capability includes increased probability detection of all targets including smaller aircraft, a fail soft feature and the ability to fully maintain the standby channel while it is operating into the antenna without interference to the operating channel. Reservations have arisen concerning the use of this feature due to lack of policy in the following areas:
 - a. Fear of operational rejection of the system upon failure of one channel.
 - b. Difficulty in obtaining standby channel downtime for routine maintenance.
5. OPERATIONAL USE. At those facilities where a diplex capability has been provided, the operational use of the system shall be as follows:
 - a. The system will be flight checked and commissioned in the simplex mode.
 - b. Minimal flight check will be made in the diplex mode to depict the operational capability.

Distribution: WFI/SM/AT/FS-3; RAF/AT/FS-3;
FAF-2 (Minimum); M-2

Initiated By: FI-220

1 Feb 1972

- c. The duplex capability will be used when available.
- d. When either channel is required for maintenance purposes, the channel will be turned over to Airway Facilities maintenance technicians without any formal outage report, failure report, NOTAM, etc. Nonavailability of either channel shall never be considered as an outage.
- e. Maintenance concepts for new and modified systems having duplex capability will include provisions to permit maximum use of the duplex capability.



Deputy Associate Administrator for Operations